## REMARKS

Claims 1, 3 to 11, 13 to 17, 19 to 42, 44 to 52, 54 to 97 are pending in the application, of which claims 1, 7, 11, 15, 17, 25, 26, 29, 42, 48, 52, 56, 58, 66, 67, 70, 83, 85, 89, 90, 91, 92, 93, 94, 95, 96, and 97 are independent. Favorable reconsideration and further examination are respectfully requested.

In the Office Action, Claims 1, 3-6, 42, 44-47 and 89 were rejected under 35 U.S.C. §102(e) over U.S. Patent No. 6,246,687 (Siu); claims 7-11, 13-17, 19-41, 48-52 and 54-97 were rejected under 35. U.S.C. 102(e) over U.S. Patent No. 6,515,965 (Hou). Applicants respectfully traverse these rejections for at least the following reasons.

**Rejection of independent claims 1, 42, and 89 under 35 USC §102(e)**

Independent claim 1, as amended, defines a method of allocating bandwidth to data traffic flows for transfer through a network device. The method includes maintaining a queue size of a committed data traffic flow ... and maintaining a queue size of an uncommitted traffic flow. Siu fails to disclose or suggest such a method.

Siu describes a method of allocating bandwidth based on guaranteed data rates for individual virtual connections (see abstract). Siu's scheduling mechanism consists of two phases in each period T (col. 4, lines 11-14). During the first phase individual virtual connections are served their guaranteed data rates and during the second phase any excess buffer space is allocated to the individual virtual connections. In the allocation process, Siu does not differentiate between committed data traffic and uncommitted traffic flows for the virtual connections. In fact, both the first and second phase allocate bandwidth to the same set of connections. Therefore, since Siu does not include both committed and uncommitted traffic flows, Siu fails to disclose or suggest "maintaining a queue size of a committed data traffic flow related to one or more committed data traffic flows for a virtual connection" and "maintaining a queue size of the uncommitted traffic flow queue related to one or more uncommitted data flows for the virtual connection" as recited in claim 1.

Independent claim 1, also includes allocating bandwidth to uncommitted data traffic flows using a weighted maximum/minimum process. The weighted maximum/minimum process allocates bandwidth to the uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow. The weight corresponds to an amount of bandwidth needed by the uncommitted data traffic flow and is determined based on a delay and an average rate requirement for each uncommitted data traffic flow. Siu fails to disclose or suggest such a method for allocating the bandwidth.

Siu describes a scheduling process which uses weights $W_i$. However, these weights do not correspond to an amount of bandwidth needed by the uncommitted data traffic flow as recited in claim 1. Instead, Siu's weights are associated with guaranteed buffer space (Col. 2, lines 52-53) and are used in "per-VC queuing of the MCR scheduling phase" which allocated bandwidth to committed traffic flows in order to satisfy minimum guaranteed cell rates (column 5, line 22-23, line 31, line 60). The weights used by Siu are calculated according to Wj = Wj + MCR*T. Thus, the weight is a function of a previously determined weight and a number of cells guaranteed to the flow for the time period. Siu's weight is not related to the actual traffic flow but is instead related to a guaranteed service rate. For example, in col. 5, Siu describes allocating bandwidth until either the weight equal zero (i.e., the guaranteed bandwidth had been met) or the queue is empty (col. 5, lines 35-47). Siu does not disclose that the weight $W_i$ corresponds to an amount of bandwidth needed by a traffic flow. Thus, Siu fails to disclose or suggest the method of claim 1.

Amended independent claim 42 is an apparatus claim that corresponds roughly to claim 1; and amended independent claim 89 is a computer program claim that corresponds roughly to claim 1. These claim are also believed to be patentable for at least the same reasons set forth with respect to claim 1.

**Rejection of independent claims 7, 48, and 90 under 35 USC §102(e)**

Independent claim 7 defines a method of allocating bandwidth to data flows passing through a network device, each of the data flows having an associated weight corresponding to

an amount of bandwidth needed by the data traffic flow. An amount of bandwidth is added to the data flows in proportion to weights of the data flows until one port through the network device reaches a maximum value. The amounts of bandwidth allocated to data flows in the port are frozen. The amount of bandwidth is increased to all remaining data flows passing through the network device in proportion to weights of the remaining data flows.

Hou discloses increasing the bandwidth of a session having the smallest until the rate reaches the "rate of the next (of this session) highest session-rate, or remaining link bandwidth before saturation, or peak rate-current rate" (Fig. 3, steps 303 and 304). More particularly, Hou discloses a process which sorts the sessions into a list according to increasing rate and increases bandwidth of the session having the smallest rate. Hou increases the bandwidth based on the current bandwidth for the flow and not based on a weight associated with the flow. Hou, therefore, fails to disclose or suggest increasing an amount of bandwith to the data flows in proportion to the weights of the data flows where the weights correspond to an amount of bandwidth needed by the data traffic flow as recited in claim 7.

Amended independent claim 48 is an apparatus claim that roughly corresponds to claim 7; and amended independent claim 90 is a computer program claim that corresponds roughly to claim 7. These claims are also believed to be patentable for at least the reasons set forth above with respect to claim 7.

**Rejection of independent claims 11, 52, and 91 under 35 USC §102(e)**

Amended independent claim 11 is directed to a method of allocating bandwidth to data flows passing through a network device. The method includes allocating a predetermined amount of bandwidth to one or more of the data flows and distributing remaining bandwidth to remaining data flows using a weighted maximum/minimum process. The weighted maximum/minimum process allocates bandwidth to remaining data flows in proportion to a weight associated with each remaining data flow. The weight corresponds to an amount of bandwidth needed by the data traffic flow and determined based on a delay and an average rate requirement for each remaining data flow.

As explained above with respect to claim 7, Hou does not distribute bandwidth in proportion to a weight that corresponds to an amount of bandwidth needed by the flow. Thus, Hou fails to disclose or suggest "distributing the remaining bandwidth to remaining data flows ... in proportion to a weight ... the weight corresponding to an amount of bandwidth needed by the data traffic flow," as in Applicants' claim 11. Accordingly, claim 11 is also believed to be patentable over the art.

Amended independent claim 52 is an apparatus claim that roughly corresponds to claim 11; and amended independent claim 91 is a computer program claim that corresponds roughly to claim 11. These claims are also believed to be patentable for at least the reasons set forth above with respect to claim 11.

**Rejection of independent claims 15, 56, and 92 under 35 USC §102(e)**

Independent claim 15 recites a method that includes "determining a character of the data flows, the character corresponding to a probability of the data flow in using the bandwidth" and "allocating bandwidth to the data flows in accordance with the character of the data flows, wherein the bandwidth is allocated to data flows according to which data flows have a highest probability of using the bandwidth." Hou fails to disclose or suggest such a method.

Hou discloses a process which sorts the sessions into a list according to increasing rate and increases the rate of the session having the smallest rate. Therefore, Hou allocates the bandwidth to the data flow having the lowest rate and not to the "data flows have a highest probability of using the bandwidth" as recited in claim 15.

Amended independent claim 56 is an apparatus claim that roughly corresponds to claim 15; and independent claim 92 is a computer program claim that corresponds roughly to claim 15. These claims are also believed to be patentable for at least the reasons set forth above with respect to claim 15.

**Rejection of independent claims 17, 58, and 93 under 35 USC §102(e)**

Amended claim 17 recites a method that includes allocating bandwidth "in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to an amount of bandwidth needed by the uncommitted data traffic flow and determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

As described above, Hou discloses a process which sorts the sessions into a list according to increasing rate from lowest to highest and increases the rate of the session having the smallest rate. Therefore, Hou allocates the bandwidth to the data flow having the lowest rate and not to the "proportion to a weight corresponding to an amount of bandwidth needed by the uncommitted data traffic flow" as recited in claim 17.

Amended independent claim 58 is an apparatus claim that roughly corresponds to claim 17; and amended independent claim 93 is a computer program claim that corresponds roughly to claim 17. These claims are believed to be patentable for at least the reasons set forth above with respect to claim 17.

**Rejection of independent claims 25, 66, and 94 under 35 USC §102(e)**

Independent claim 25 includes a process that "allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow."

As described above, Hou discloses a process which sorts the sessions into a list according to increasing rate from lowest to highest and increases the rate of the session having the smallest rate. Therefore, Hou allocates the bandwidth to the data flow having the lowest rate and not to in proportion to a weight "corresponding to a delay and an average rate requirement for each uncommitted data traffic flow" as recited in claim 25.

Amended independent claim 66 is an apparatus claim that roughly corresponds to claim 25; and amended independent claim 94 is a computer program claim that corresponds roughly to claim 25. These claims are believed to be patentable for at least the reasons set forth above with respect to claim 25.

**Rejection of independent claims 26, 67, and 95 under 35 USC §102(e)**

Independent claim 26 recites a method that "allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

As described above, Hou discloses a process which sorts the sessions into a list according to increasing rate from lowest to highest and increases the rate of the session having the smallest rate. Therefore, Hou allocates the bandwidth to the data flow having the lowest rate and not to in proportion to a weight "corresponding to a delay and an average rate requirement for each uncommitted data traffic flow" as recited in claim 26.

Amended independent claim 67 is an apparatus claim that roughly corresponds to claim 26; and amended independent claim 95 is a computer program claim that corresponds roughly to claim 26. These claims are also believed to be patentable for at least the reasons set forth above with respect to claim 26.

**Rejection of independent claims 29, 70, and 96 under 35 USC §102(e)**

Independent claim 26 recites a method that "allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow."

As described above, Hou discloses a process which sorts the sessions into a list according to increasing rate from lowest to highest and increases the rate of the session having the smallest rate. Therefore, Hou allocates the bandwidth to the data flow having the lowest rate and not to in proportion to a weight "corresponding to a delay and an average rate requirement for each uncommitted data traffic flow" as recited in claim 29.

Amended independent claim 70 is an apparatus claim that roughly corresponds to claim 29; and amended independent claim 96 is a computer program claim that corresponds roughly to

claim 29. These claims are also believed to be patentable for at least the reasons set forth above with respect to claim 29.

**Rejection of independent claims 83, 85, and 97 under 35 USC §102(e)**

Independent claim 87 includes "allocating bandwidth in the network device to uncommitted data traffic flows based on the amount of bandwidth that was used during the previous data traffic flow transfer."

As described above, Hou discloses a process which sorts the sessions into a list according to increasing rate from lowest to highest and increases the rate of the session having the smallest rate. Since Hou bases the increases in bandwidth on the current transmission rates for the different flows, Hou does not describe or suggest allocating the bandwidth "based on the amount of bandwidth that was used during the previous data traffic flow transfer" as recited in claim 87.

Independent claim 85 is an apparatus claim that roughly corresponds to claim 83; and independent claim 97 is a computer program claim that corresponds roughly to claim 83. These claim are also believed to be patentable for at least the reasons set forth above with respect to claim 83.

**Rejection of dependent claims**

Each of the dependent claims is also believed to define patentable features of the invention. Each dependent claim partakes of the novelty of its corresponding independent claim and, as such, has not been discussed specifically herein.

**Summary**

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this

paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Enclosed is check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: November 1, 2005

Paul A. Pysher
Reg. No. 40,780

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

21135637.doc